

ABSTRACT OF THE DISCLOSURE

A method of making a thin film explosive detonator includes forming a substrate layer; depositing a metal layer in situ on the substrate layer; and reacting the metal layer to form a primary explosive layer. The method and apparatus formed thereby integrates fabrication of a micro-detonator in a monolithic MEMS structure using "in-situ" production of the explosive material within the apparatus, in sizes with linear dimensions below about 1 mm. The method is applicable to high-volume low-cost manufacturing of MEMS safety-and-arming devices. The apparatus can be initiated either electrically or mechanically at either a single point or multiple points, using energies of less than about 1 mJ.

10

15